

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendments and the following remarks.

By the foregoing amendment, claims 9-14 have been amended. No new matter has been added. Claims 1-8 have been previously canceled. Thus, claims 9-14 are pending in this application and subject to examination.

As a preliminary matter, the Applicant expresses appreciation for the indication of allowable subject matter in claims 10 and 12 of the application.

Summary of the Response

In the Office Action mailed July 21, 2006, claims 9 and 11 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,724,094 to Tseng et al. (hereinafter "Tseng"). Claims 13 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tseng. Claims 10 and 12 were indicated as containing allowable subject matter and were objected to as being dependent on a rejected base claim. It is noted that claims 9-14 have been amended. To the extent the rejection remains applicable to the claims currently pending, the Applicants respectfully traverse the rejection, as follows.

Claims 9, 11, 13 and 14 Recite Allowable Subject Matter

Regarding claims 9, 11, 13, and 14, as amended, the Applicant respectfully submits that nothing in the cited art discloses or suggests at least the combination of features of "a signal output line switching circuit connected between the plurality of

signal output lines and the output circuit for sequentially selecting among the plurality of signal output lines to lead the photoelectric conversion signal transmitted through the selected signal output line to the output circuit," a "logic circuit for controlling the signal output line switching circuit to switch from a signal output line currently selected to a signal output line corresponding to the next group after a last photoelectric conversion signal in the currently selected group has been read but before a first photoelectric conversion signal in the next group is read," and a photoelectric conversion signal transmitted from "a photoelectric conversion element," through "one of signal output lines, the one selected by a switching circuit," "the switching circuit," and "an output circuit" to "an output terminal from an IC chip," as recited in claims 9, 11, 13 and 14, as amended.

Referring to Fig. 10 of Tseng, assuming for the sake of argument, without admitting, that the left sensor chip is chip 1, center sensor chip is chip 2, and the right sensor chip is chip N, a sensor signal (Video Output) is outputted from a terminal AO of each of the sensor chips, and a dummy sensor signal (Dummy Output) is outputted from a terminal DO of each of the sensor chips. See Fig. 10 of Tseng.

The terminals AO on all of the sensor chips 1 – N are connected to a common signal line and then to an inverted (-) terminal of a differential amplifier through a resistor Ra. The terminals DO on sensor chips 1 – N are connected to a common dummy signal line and then to a non-inverted (+) terminal of the differential amplifier through another resistor Ra. The Office Action indicates that the differential amplifier in

Fig. 10 of Tseng is read on the signal output line switching circuit recited in claims 9 and 11. See Office Action, at page 6.

The Office Action further indicates that the “plurality of signal output lines,” recited in claims 9, 11, 13 and 14 are disclosed in Tseng as the “output lines, in Fig. 10, through which the photoelectric signal is transmitted” (i.e., lines from AO or DO). According to the Office Action, the “signal output line switching circuit” of claims 9, 11, 13 and 14 corresponds to the differential amplifier in Fig. 10 of Tseng, as discussed above. Therefore, there can be no “signal output line switching circuit” connected and operating in a manner described above found in Fig. 10. Accordingly, Tseng also fails to disclose or suggest “a logic circuit for controlling the signal output line switching circuit to switch from a signal output line currently selected to a signal output line corresponding to the next group after a last photoelectric conversion signal in the currently selected group has been read but before a first photoelectric conversion signal in the next group is read,” as recited in claims 9, 11, 13 and 14, as amended.

Regarding the photoelectric conversion signal that is transmitted from “a photoelectric conversion element,” through “one of signal output lines, the one selected by a switching circuit,” “the switching circuit,” and “an output circuit” to “an output terminal from an IC chip,” as recited in claims 9, 11, 13 and 14, as amended, the Applicant respectfully submits that Tseng fails to disclose or suggest this feature. Tseng discloses a path from “a photoelectric conversion element S,” through a common signal output line shared by all photoelectric conversion elements S1 – Sn,” “an output

terminal AO from an IC chip,” and “an output circuit (e.g., the differential amplifier in Fig. 10),” to “an output terminal VOUT.” See, e.g., Tseng Fig. 10.

The claimed invention, by contrast, provides a solution for reducing the resistance and capacitance of the conductor serving as the signal output line and thereby reducing the parasitic capacitance connected to a single signal output line, which otherwise would become a long common signal output line shared by all elements, as shown in Figs. 8 and 10 of Tseng. Tseng, as discussed, neither discloses how to reduce the parasitic capacitance within an IC chip (see Fig. 8) nor teaches how to reduce an overall parasitic capacitance of the path of the signal output leading from the photoelectric conversion element S to the output circuit (e.g., differential amplifier). See Tseng Figs. 8 and 10.

Furthermore, the present invention is directed to solving the problem, described in the specification, as that of a “conventional circuit configuration, [in which] the signals of all the photodiodes PD₁, PD₂, . . . , PD_n are transmitted to the output circuit 51 by way of a single output line L . . . provided so as to be common to as many as several tens to several hundred photodiodes. This makes the output line L considerably long, and thus imposes a limit on the operating frequency of the image reading device, because, the longer the conductor laid as the output line L, the higher its resistance and capacitance, and thus the greater the resulting time constant.” See specification, paragraph 9.

The Applicant respectfully submits that Tseng fails to resolve this problem. In Tseng, the series of sensor chips in the block diagram shown in Fig. 10 uses the sensor chip introduced in Fig. 8 of Tseng. Therefore, it is submitted that the problem solved by the

present invention is not resolved by Tseng, as evidenced by the block diagram shown in Fig. 10. Tseng fails to disclose or suggest resolution of this problem.

For at least this combination of reasons, the Applicant respectfully submits that claims 9, 11, 13 and 14 are allowable over the cited art.

Claims 10 and 12 Recite Patentable Subject Matter

Regarding claims 10 and 12, the Applicants respectfully submit that each of these claims depends from one of allowable claims 9 and 11, and is therefore allowable for at least the same reasons, as well as for the additional subject matter recited respectively therein.

Conclusion

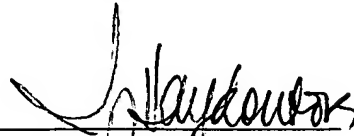
For all of the above reasons, it is respectfully submitted that the claims now pending patentably distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this

communication to Deposit Account No. 01-2300, referring to client-matter number
103213-00042.

Respectfully submitted,



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Enclosure: Petition for Extension of Time (2 months)